What is claimed is:

1. A method for determining the effective temperature inside a sealed container comprising the steps of:

providing a sealed container having a headspace;

adding a liquid solvent to the container;

adding a solid compound to the liquid solvent to create a saturated solution;

allowing vapor of the saturated solution to equilibrate in the headspace of the sealed container;

transferring a volume of the equilibrated vapor to a chromatographic column;

taking chromatographic readings of the equilibrated vapor; and

calculating a temperature within the sealed container based upon the chromatographic readings of the equilibrated vapor, wherein the temperature calculation is based upon the concentrations of the liquid solvent and the solid compound in the equilibrated vapor.

2. The method of Claim 1 wherein the chromatographic readings comprise readings of peak areas of the liquid solvent and the solid compound.

3. The method of Claim 2 wherein said calculating step comprises the step of calculating a temperature within the sealed container based upon a ratio of the readings of peak areas of the liquid solvent and the solid compound.

4. The method of Claim 1 wherein the liquid solvent comprises n-dodecane and the solid compound comprises naphthalene.

5. The method of Claim 4 wherein said calculating step employs the following equation:

$$\frac{Area_{Dodecane}}{Area_{Naphthalene}} = 2.094 - 0.02313 \cdot T$$

wherein $Area_{Dodecane}$ and $Area_{Naphthalane}$ are readings of peak areas of n-dodecane and naphthalene respectively, and T is the temperature within the sealed container.

6. The method of Claim 1 wherein the liquid solvent comprises n-octadecane and the solid compound comprises anthracene.

7. A method for determining the effective temperature inside a sealed container comprising the steps of:

providing a sealed container having a headspace;

adding a liquid solvent to the container;

adding a solid compound to the liquid solvent to create a saturated solution;

allowing vapor of the saturated solution to equilibrate in the headspace of the sealed container;

transferring a volume of the equilibrated vapor to a chromatographic column;

taking chromatographic readings of the equilibrated vapor;

calculating peak areas of the liquid solvent and the solid compound based upon the chromatographic readings; and

calculating a temperature within the sealed container based upon a ratio of the readings of peak areas of the liquid solvent and the solid compound, wherein the temperature calculation is based upon the concentrations of the liquid solvent and the

solid compound in the equilibrated vapor, which are dependent upon both liquid solubility and vapor pressure.

8. The method of Claim 7 wherein the liquid solvent comprises n-dodecane and the solid compound comprises naphthalene.

9. The method of Claim 8 wherein said calculating step employs the following equation:

$$\frac{Area_{Dodecane}}{Area_{Naphthalene}} = 2.094 - 0.02313 \cdot T$$

wherein $Area_{Dodecane}$ and $Area_{Naphthalane}$ are readings of peak areas of n-dodecane and naphthalene respectively, and T is the temperature within the sealed container.

10. The method of Claim 7 wherein the liquid solvent comprises n-octadecane and the solid compound comprises anthracene.

11. A method for determining the temperature of a saturated solution comprising the steps of:

mixing a liquid solvent with a solid compound to create a saturated solution;

allowing vapor of the saturated solution to equilibrate;

taking chromatographic readings of the equilibrated vapor;

calculating peak areas of the liquid solvent and the solid compound based upon the chromatographic readings; and

calculating a temperature of the saturated solution based upon a ratio of the readings of peak areas of the liquid solvent and the solid compound, wherein the temperature calculation is based upon the concentrations of the liquid solvent and the solid compound in the equilibrated vapor, which are dependent upon both liquid solubility and vapor pressure.

12. The method of Claim 11 wherein the liquid solvent comprises n-dodecane and the solid compound comprises naphthalene.

13. The method of Claim 12 wherein said calculating step employs the following equation:

$$\frac{Area_{Dodecane}}{Area_{Naphthalene}} = 2.094 - 0.02313 \cdot T$$

wherein $Area_{Dodecane}$ and $Area_{Naphthalane}$ are readings of peak areas of n-dodecane and naphthalene respectively, and T is the temperature within the sealed container.

14. The method of Claim 11 wherein the liquid solvent comprises n-octadecane and the solid compound comprises anthracene.